



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT : William R. Palmer et al  
INVENTION : FORMABLE, POROUS,  
CHEMILUMINESCENT REACTANT  
COMPOSITION AND DEVICE THEREFOR  
SERIAL NUMBER : 10/076,051  
FILING DATE : February 12, 2002  
EXAMINER : Daniel S. Metzmaier  
GROUP ART UNIT  
OUR FILE NO. : 1471.075

TO: Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

DECLARATION PURSUANT TO 37 CFR 1.132

COMES now Earl Cranor, and avers the following:

I, Earl Cranor, do hereby declare as follows:

1. I am a co-inventor in the above-reference patent application and Vice President of Technology at Cyalume Technologies, Inc., at West Springfield, MA Since January 2006, have been responsible for operations, engineering, and research and development at Cyalume Technologies, Inc. The following is a list of US Patents that I have co-invented: US Patent nos. 6,106,129; 6,126,871; 6,267,914; 6,461,543; 7,052,631. In addition, am listed as co-inventor on the following pending US patent applications: 10/984,549 and 11/135,692.

2. I have reviewed the following documents: Cohen et al. (US Patent No. 5,173,218); Holland et al., (US Patent No. 5,158,349) and Roberts (US Patent No. 3,808,414). It is my understanding that claims 1-12, and 26-36 (as presented on July 25 2005) of the instant patent application have been rejected Cohen et al., (WO 87/02882) on the basis that it would have been obvious to one of ordinary skill in the art at the time of applicants' invention to employ paste or thixotropic slurries with the multiple particle size polymers disclosed in the Cohen et al., reference as very thick smooth mixtures.

Specifically, the Examiner asserts that the patent to Cohen et al., differs from the claims in the characterization of the slurry composition as a "fluidized solid" and in the use of functional language defining the amount of second particulate effective to yield a fluidized solid admixture.

3. In addition claims 13-25 and 37-50 were rejected under 35 USC 103 (a) as allegedly being unpatentable over Cohen et al., US Patent No. 5,173,218 and further in view of Holland et al., (US Patent No. 5,158,349) and Roberts (US Patent No. 3,808,414)

4 I am of the opinion that one could not derive the packable and formable powder chemiluminescent reactant composition, as set forth in claims of the instant application, from the references of Cohen et al., Holland, et al., and Roberts, as alleged by the

Examiner

5. Attached herewith are photographs of the chemiluminescent reagent compositions prepared in a manner similar to that disclosed in Example 1 of Cohen et al. (see photographs labeled FIGS. 1A-2)

according to the present invention as disclosed in the specification beginning at page 38, line 19 (see photographs labeled FIGS. 3A-4). These figures clearly delineate the difference between the packable and formable powder chemiluminescent reactant composition (FIGS. 3A-4) as presently claimed and the liquid slurry chemiluminescent reactant composition of Cohen et al (FIGS. 1A-2)

Cohen et al., disclose a combination of PVC polymer resins to produce a porous, flexible, chemiluminescent structure from liquid slurries. The processes and formulas taught by Cohen et al., focus on producing products which are made by pouring a liquid slurry mixture into molds. Thus, the ultimate shape of the resulting chemiluminescent structure of Cohen et al., is limited to the shape of the mold into which the slurry is poured. All of the PVC resin particles of Cohen et al., are dissolved and absorbed to form a homogenous smooth mixture (liquid slurry) which is then poured into form. This is in contrast to the presently claimed invention wherein the powder chemiluminescent composition of the present invention consists of distinct, individual particles

resulting chemiluminescent structures of Cohen et al. have a relatively tough and non-porous "skin" wherever the slurry has been in contact with the mold during the curing process. This skin is created by an inability of the more dense liquid slurry to draw in air (or other gasses) during the curing process

It is during the curing process that air is drawn into the product to replace the volume occupied by solvents which become absorbed into the PVC resin particles. This process continues as air is drawn down to ever increasing depths within the product as it cures. It is this inclusion of air into the product during the curing process which primarily determines the percent of interstitial pore space and resulting absorptiveness of the product. Consequently, the resulting chemiluminescent structure of Cohen et al., is incapable of uniformly absorbing liquid activator solution in sufficient quantities, therefore, the structure yields poor light output of the chemiluminescent product

It has been unexpectedly discovered by the present inventors that in order to achieve a significantly uniform porous product, a chemiluminescent reactant composition should be in the form of a packable and formable powder defined by a homogenous mixture of distinct, individual particles. This is critical and significantly different than the liquid slurry taught in Cohen et al. The

individual and distinct particles of the present invention form a powder composition with an intrinsically high degree of porosity and interstitial air spaces that allow air to enter into the composition during the curing process from the exposed surfaces of the product. The individual and discrete particles in the powdered composition provide immediate and significant improvement in the amount of chemiluminescent activator reagent absorption and corresponding light output of the resulting product.

6. Accordingly, it is my opinion that the disclosure of Cohen et al., is in no way suggestive of a packable and formable powder chemiluminescent reaction composition having a homogenous mixture of distinct particles, as currently claimed. In addition, the patents to Holland et al., and Roberts fail to include any disclosure suggestive of a chemiluminescent reactant powder composition defined by a homogenous mixture of distinct particles. Thus, I would conclude that the invention as currently claimed is neither disclosed or suggested by the cited prior art.

Appl. No. 10/076,051 Amdt. dated Reply to Office action of October 06, 2005

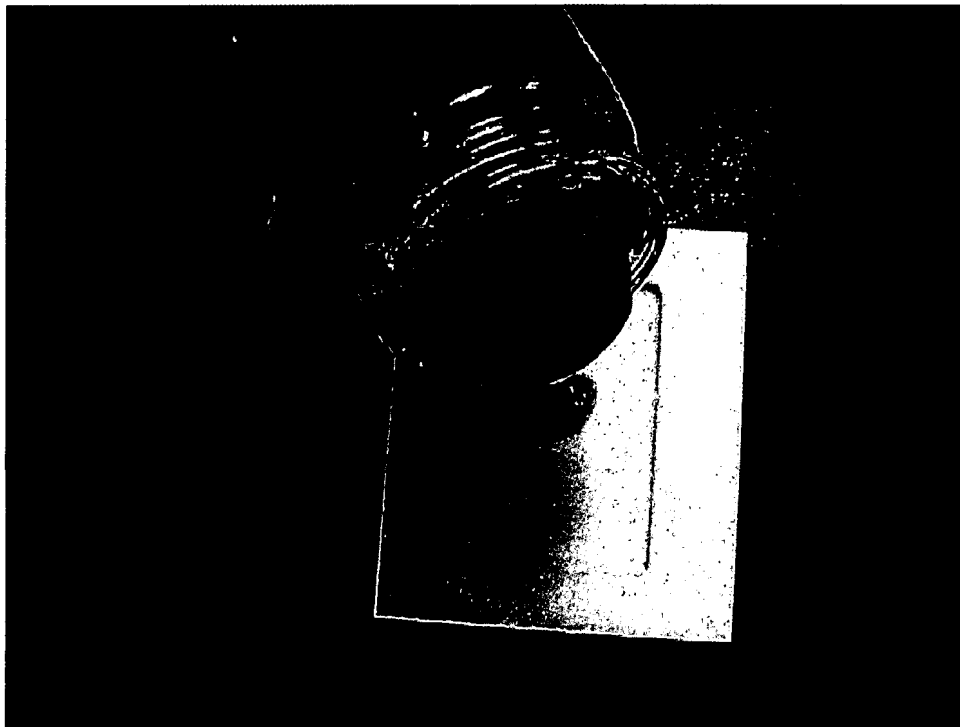
FURTHER, declarant sayeth not..

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 17 U. S. C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

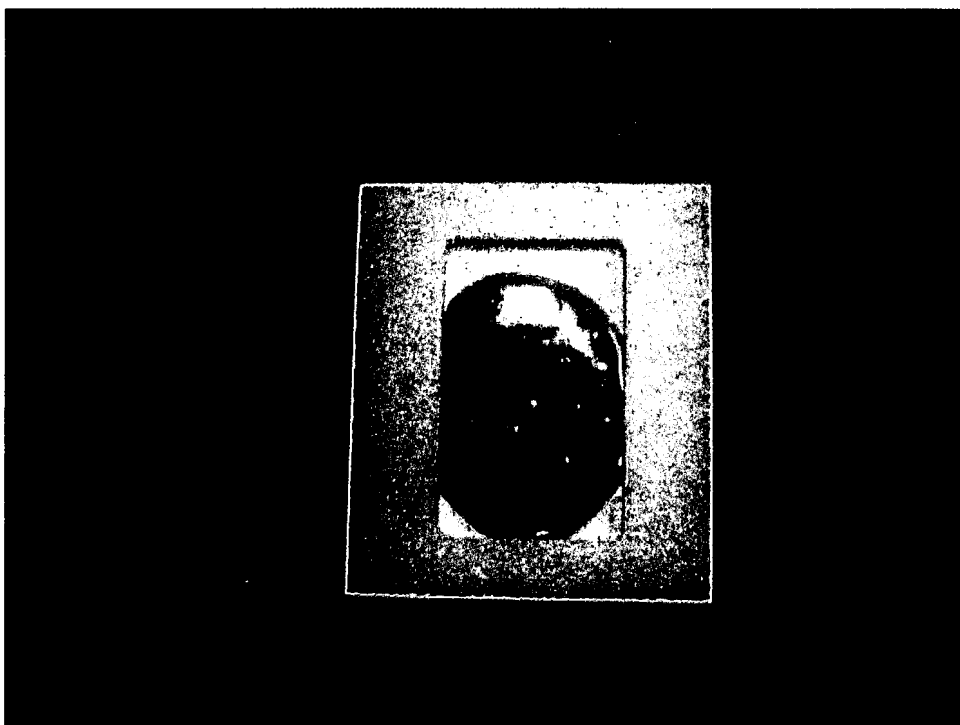
A handwritten signature in dark ink, appearing to read "Earl Cranor", is written over a horizontal line.

Earl Cranor

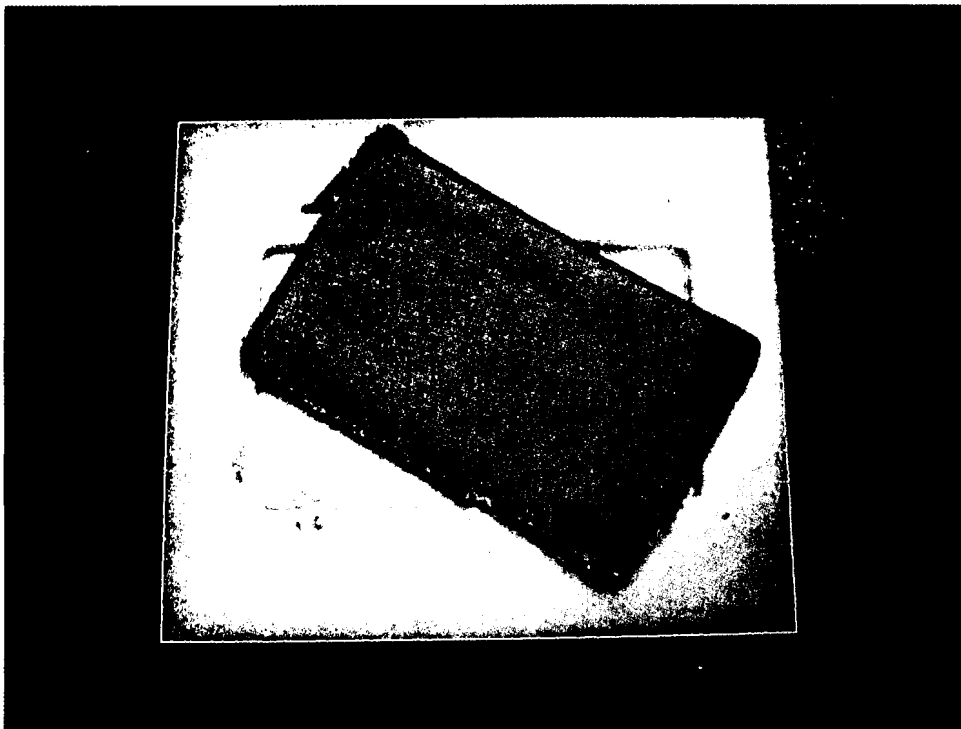
\\Ns2\server\CLIENT FILES\1400-1499\1471 - Cyalume\1471U\_000075- US UT  
APPLN\Amendments\1471\_075\_KB\_132 DECLARATION.wpd



**FIG. 1 A  
(PRIOR ART)**

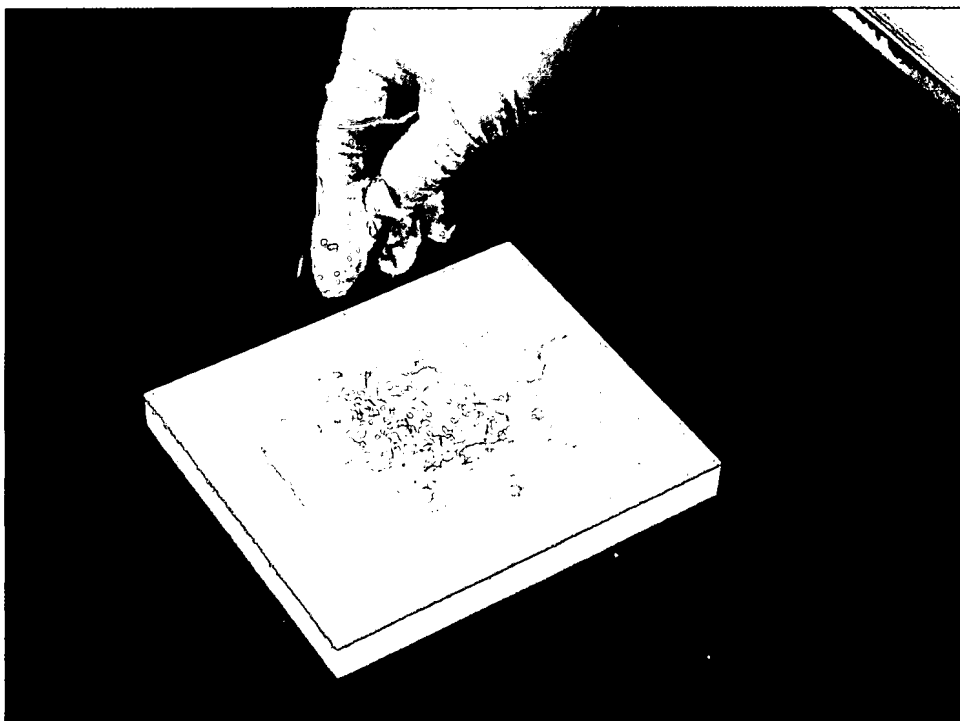


**FIG. 1 B  
(PRIOR ART)**

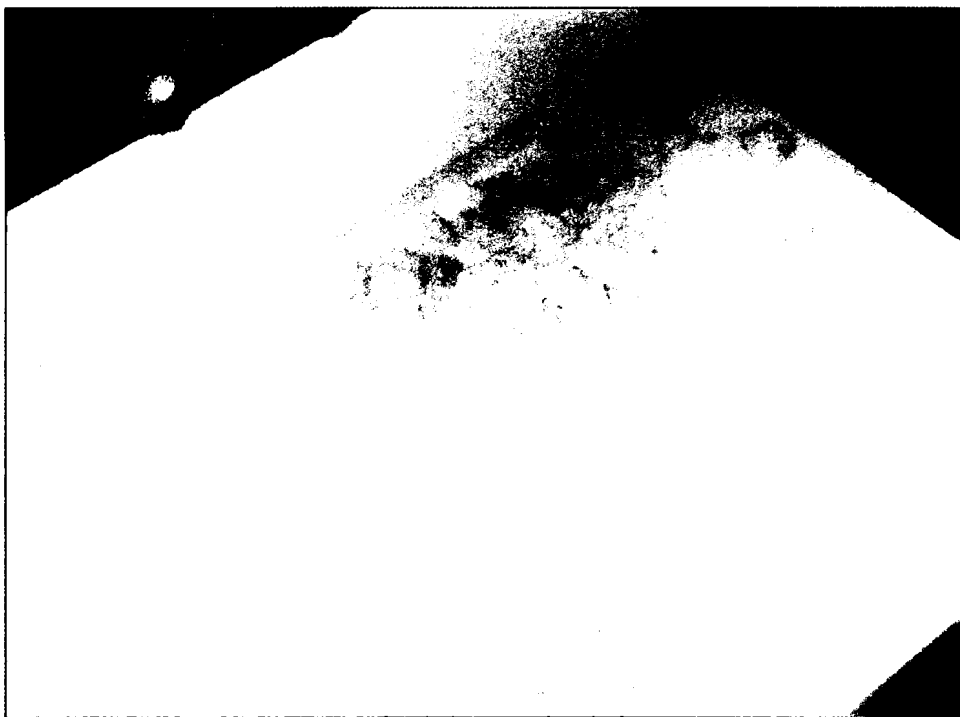


**FIG. 2**  
**(PRIOR ART)**

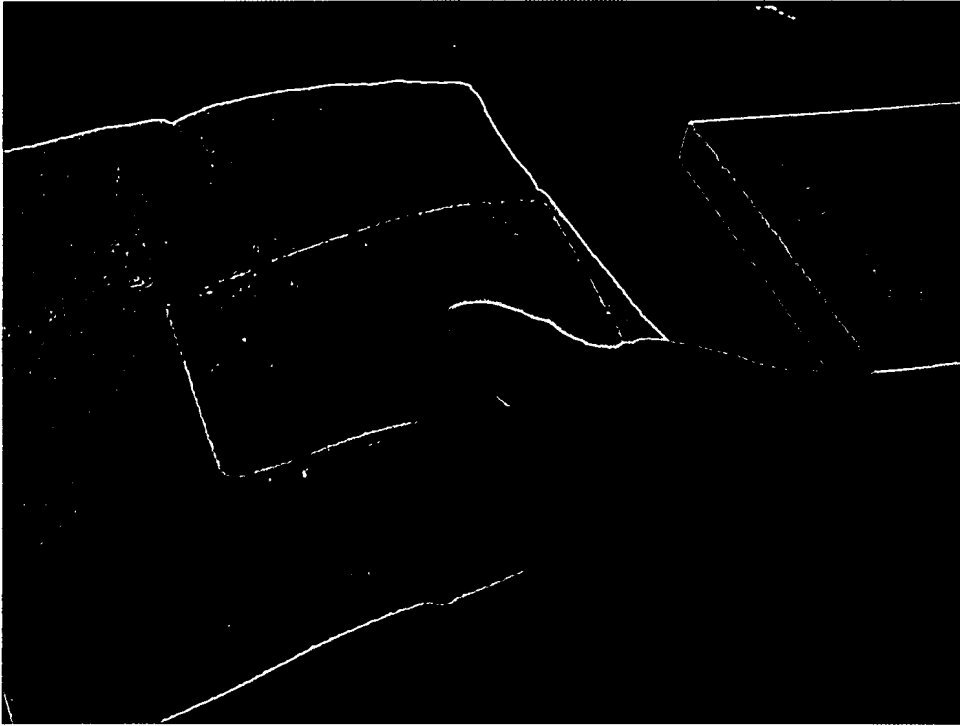




**FIG. 3 A**



**FIG. 3 B**



**FIG. 4**